

## **Non-CO<sub>2</sub> Greenhouse Gases: Methane**

**Source/Sectors:** Petroleum Systems (Production Field Operations)

**Technology:** Flaring instead of venting (A.1.1.1.1)

### **Description of the Technology:**

Petroleum production field operations account for the majority, approximately 97%, of CH<sub>4</sub> emissions from the petroleum systems (USEPA, 2006a). The measures to reduce methane emissions from the petroleum systems can be grouped into prevention, recovery and re-injection, recovery and utilization, and recovery and incineration (Hendriks & de Jager, 2001).

With regards to CH<sub>4</sub> emission reduction, flaring is a better alternative to venting because it destroys the gas rather than releasing it into the atmosphere and flaring converts methane to carbon dioxide which has a much lower GWP (USEPA, 2004; Hendriks & de Jager, 2001).

**Effectiveness:** Good

**Implementability:** Good

**Reliability:** Good

**Maturity:** Good

**Environmental Benefits:** It destroys the gas rather than releasing it into the atmosphere and flaring converts methane to carbon dioxide which has a much lower GWP.

### **Cost Effectiveness:**

<b>Technology</b>	<b>Lifetime (yrs)</b>	<b>MP (%)</b>	<b>RE (%)</b>	<b>TA (%)</b>	<b>Capital cost</b>	<b>Annual cost</b>	<b>Benefits</b>
Flaring instead of venting <sup>1</sup>	15	100	98	5	\$33.30	\$1.00	\$0.00

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT<sub>CO<sub>2</sub>-Eq.</sub>

1: USEPA (2004) & IEA (2003)

**Industry Acceptance Level:** Widely accepted

**Limitations:** A good process control and monitoring system is needed to ensure that the flame is on.

### **Sources of Information:**

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11. U.S. Environmental Protection Agency (2006a) "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2004", Office of Atmospheric Programs, United States Environmental Protection Agency, EPA-430-R-06-002, June 2006.
12. U.S. Environmental Protection Agency (2006b) "Global Mitigation of Non-CO<sub>2</sub> Greenhouse Gases", Office of Atmospheric Programs, United States Environmental Protection Agency, EPA-430-R-06-005, June 2006.